Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-14. (Canceled)

15. (Previously presented) A method for synthesizing a double stranded nucleic acid molecule that contains information that represents computer-readable binary code, comprising at least the steps of:

i) hybridizing together a plurality of double-stranded nucleic acid fragments, each fragment consisting of between 8 and 25 bases and comprising at least one sequence of between 4 and 10 bases that represent a unit of the binary code, and each fragment comprising at least one single stranded region that is capable of hybridizing to at least one other fragment; and

ii) optionally ligating the hybridized fragments;

to produce a double stranded nucleic acid molecule comprising a series of binary code units.

16-18. (Canceled)

19. (Previously presented) A method according to claim 15, wherein at least 10 double stranded nucleic acid fragments are

hybridized together in step (i), to produce a double-stranded nucleic acid molecule comprising 10 fragments.

20. (Previously presented) A method according to claim 15, wherein a plurality of double stranded nucleic acid molecules comprising a series of double-stranded nucleic acid fragments are synthesized and linked together.

21. (Canceled)

22. (Previously presented) A method of identifying at least one binary code unit contained within a double stranded nucleic acid molecule produced according to claim 15, comprising the steps of:

i) binding a labelled probe that is specific to at least one code unit to the unit; and

ii) detecting the label associated with the bound probe, thereby detecting the presence of the binary code unit to which the probe binds.

23. (Previously presented) A library comprising a plurality of double stranded nucleic acid fragments as defined in claim 15.

24. (Previously presented) A kit for synthesizing a double stranded nucleic acid molecule that contains information that represents computer-readable binary code comprising a library of fragments according to claim 15 and a ligase.